

Message Text

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C O N F I D E N T I A L ROME 1734

E.O. 11652: GDS

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SUBJECT: ENERGY: ITALIAN R&D IN NUCLEAR ENERGY AND IN OTHER
NON-CONVENTIONAL SOURCES

BRUSSELS FOR RUBIN

STATE ALSO FOR T/IEP

SUMMARY. ITALY HAS BEEN CONCENTRATING ITS RESEARCH ON THREE TYPES
OF NUCLEAR REACTORS: LIGHT WATER, HEAVY WATER AND FAST BREEDER
WITH AIM OF BRINGING ITALIAN INDUSTRY TO LEVEL CAPABLE OF PART-
ICIPATING IN EUROPEAN PROJECTS. CNEN HAS SMALL CENTRIFUGE PROJECT,
AND DOES RESEARCH ON DIFFUSION; GEOTHERMAL RESEARCH IS ACTIVE,
BUT LITTLE IS BEING DONE ON SOLAR ENERGY. END SUMMARY

1. ITALIAN R&D IN NUCLEAR REACTORS IS CONCENTRATED IN THREE
FIELDS: LIGHT WATER REACTORS, HEAVY WATER REACTORS AND FAST
BREEDER REACTORS. GOAL FOR LIGHT WATER REACTORS IS THAT
ITALIAN COMPANIES WHICH ARE U.S. LICENSEES SHOULD BECOME MORE
INDEPENDENT ON MANUFACTURING SIDE OF REACTOR COMPONENTS;
EFFORT WILL BE CONCENTRATED ON FUEL ELEMENT DESIGN AND IT
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IS EXPECTED THAT WITHIN FIVE TO SIX YEARS ITALIAN COMPANIES

WILL HAVE COMPLETELY INDEPENDENT KNOW-HOW ON FUEL ELEMENT.

2. ITALY HAS BEEN WORKING FOURTEEN YEARS IN HEAVY WATER REACTOR FIELD AND HAS AGREEMENTS WITH CANADA AND U.K. ITALIANS HAVE FULL LABORATORY CAPABILITIES IN LIGHT-WATER COOLED TYPE OF HEAVY WATER REACTOR AND ARE STARTING TO BUILD A 40MW PROTOTYPE AT LATINA; ALL COMPONENTS IN THIS PROTOTYPE WILL BE FULL SIZED. IT IS EXPECTED TO GO INTO OPERATION IN 1979.

3. IN THE FIELD OF FAST BREEDER REACTORS, ITALY HAS DECIDED TO CONCENTRATE ON CERTAIN MATTERS; ONE AREA IS FUEL CYCLE. A PEC (PROTOTYPE FOR TEST OF FUEL ELEMENTS) TEST REACTOR WILL BE BUILT IN MOUNTAINS SOUTH OF BOLOGNA. ITALIAN NUCLEAR EXPERTS HAVE YET TO DECIDE ON WHICH PART OF COMPONENT WORK OF FAST BREEDERS TO SPECIALIZE; IT MIGHT BE IN STEAM GENERATORS OR IN PUMP DEVELOPMENT. DECISION WILL DEPEND ON WHICH COUNTRIES ITALY COLLABORATES WITH ON FAST BREEDER REACTORS.

4. CNEN HAS SMALL, ONE-UNIT CENTRIFUGE ENRICHMENT PROJECT WHICH HAS PRODUCED VERY SMALL AMOUNTS OF ENRICHED URANIUM FOR EXPERIMENTAL PURPOSES. ALSO RESEARCH IS BEING DONE IN DIFFUSION THROUGH A DIFFUSION BARRIER TEST PROGRAM.

5. ITALIAN SCIENTISTS HAVE NOT RPT NOT BEEN VERY ACTIVE IN SOLAR ENERGY; AT UNIVERSITY OF BARI RESEARCH HAS BEEN DONE ON UTILIZATION OF SOLAR ENERGY FOR DESALINATION. ALSO SOME FUNDAMENTAL RESEARCH HAS BEEN DONE ON SOLAR ENERGY CELLS AT INSTITUTE OF APPLIED MECHANICS OF UNIVERSITY OF GENOA.

6. ITALY HAS DONE CONSIDERABLE RESEARCH IN GEOTHERMAL ENERGY; AND ENEL IS PLANNING TO INCREASE ITS PRODUCTION OF ELECTRICITY GENERATED FROM GEOTHERMAL ENERGY. CNR'S INTERNATIONAL INSTITUTE FOR GEOTHERMAL RESEARCH IS INVESTIGATING NEW TECHNIQUES FOR DISCOVERY, EXPLOITATION AND MONITORING OF STEAM FIELDS; OTHER RESEARCH IS FOCUSING ON UTILIZATION OF LOW TEMPERATURE GEOTHERMAL FLUIDS. VOLPE

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